Dear Editor-in-Chief 15 February 2022

R.E. Submission of manuscript on validating the use of species distribution models (MaxEnt) when transferred in space

My co-author and I would be most grateful if you would consider our manuscript validating the use of species distribution models when transferred in space in Ecological Modelling. We believe that our manuscript matches the scope of the journal very well for a variety of reasons.

Ecological models are important tools to support and guide the development and implementation of environmental policies and management programs. Species distribution models (i.e. climate-matching models, such as MaxEnt) are becoming more popular each year. However, a number of researchers have raised concerns over the use of these models when transferred in space, which is often where these models are used (e.g. predicting the establishment of invasive species in novel geographic regions). To remedy this, many authors have called for appropriate validation of such models, however, the majority of studies to date have not used independent testing data from the data used to calibrate the models. This has limited our ability to truly assess the usefulness of these models.

Our paper provides one of the first assessments of a species distribution model, using independent testing data, calibrated with native-range data for an intentionally introduced insect in South Africa that originates from Australia. Our results show that the climate model we used was useful, however, researchers need to be aware of multiple caveats and computational choices during the modelling process. Moreover, we highlight in our manuscript how model validation can then be used in an applied setting to potentially improve the development and implementation of a programme designed to control an invasive plant in South Africa using the intentionally introduced insect as a biological control agent.

Kind Regards,

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